

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
13 October 2005 (13.10.2005)

PCT

(10) International Publication Number
WO 2005/095617 A2

(51) International Patent Classification⁷: **C12N 15/82**

(21) International Application Number:
PCT/EP2005/002449

(22) International Filing Date: 4 March 2005 (04.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
04090086.2 5 March 2004 (05.03.2004) EP
60/549,945 5 March 2004 (05.03.2004) US
04090121.7 29 March 2004 (29.03.2004) EP

(71) Applicant (for all designated States except US): **BAYER CROPSCIENCE GMBH** [DE/DE]; Brüningstrasse 50, 65929 Frankfurt (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FROHBERG, Claus** [DE/DE]; Pilzwald 17, 14532 Kleinmachnow (DE). **KOETTING, Oliver** [DE/DE]; Choriner Strasse 23, 10435 Berlin (DE). **RITTE, Gerhard** [DE/DE]; Feuerbachstrasse 12, 14471 Potsdam (DE). **STEUP, Martin** [DE/DE]; Am Schlachtensee 116, 14129 Berlin (DE).

(74) Agent: **KOSSMANN, Jochen**; Bayer BioScience GmbH, Hermannswerder 20a, 14473 Potsdam (DE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

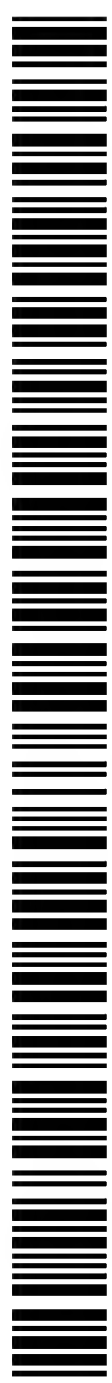
Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PLANTS WITH INCREASED ACTIVITY OF A STARCH PHOSPHORYLATING ENZYME

(57) Abstract: The present invention relates to plant cells and plants, which are genetically modified, whereby the genetic modification leads to an increase in the activity of a starch-phosphorylating OK1 protein in comparison to the corresponding wild type plant cells or wild type plants that have not been genetically modified. In addition, the present invention concerns means and methods for the manufacture of such plant cells and plants. These types of plant cells and plants synthesise a modified starch. Therefore, the present invention also concerns the starches synthesised from the plant cells and plants according to the invention, methods for manufacturing these starches, and the manufacture of starch derivatives of these modified starches, as well as flours containing starches according to the invention. Furthermore, the present invention also relates to nucleic acids, coding starch-phosphorylating OK1 proteins, vectors, host cells, plant cells, and plants containing such nucleic acid molecules. In addition, the present invention relates to OK1 proteins that have starch-phosphorylating activity.



WO 2005/095617 A2